

REMARKS

In response to the Final Office action dated July 1, 2008, Applicants respectfully request reconsideration based on the above amendments and the following remarks. Applicants respectfully submit that the claims as presented are in condition for allowance.

Claims 1-5, 7-10, 13-15, 18-22 and 26-33 are pending in the present Application. Claim 1 is currently amended. Support for the amendment to claim 1 may be found throughout the specification and figures as originally filed, specifically in FIG. 6 and page 17, lines 3-9. Claims 6, 11, 12, 16, 17 and 23-25 have been previously cancelled, leaving claims 1-5, 7-10, 13-15, 18-22 and 26-34 for further consideration.

Reconsideration and allowance of the claims are respectfully requested in view of the above amendments and the following remarks.

Claim Rejections Under 35 U.S.C. § 112

Claims 1 and 14 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly failing to be fully enabled by the specification as filed. Specifically the Examiner states, “the specification, while being enabling for transmitting signals to gate lines 121 and data lines 171, does not reasonably provide enablement for testing. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to test the invention commensurate in scope with these claims.” The Examiner further states, “the shorting bar 320 connects to all the first and second driving signal wires 521/522 and data leads 520; therefore the testing signals with different voltages transmitting[sic] through the first and second driving signal wires 521/522 and data leads 520 from outside will be short-circuit[sic] with a same electrical potential on the shorting bar and cannot be able to operate the LCD device”.

Applicants respectfully draw the Examiner’s attention to independent claim 1. Claim 1 is directed towards an apparatus, specifically, a liquid crystal display (“LCD”) device. Claim 1 includes several structural limitations including an LCD panel, a first driving signal wire and a plurality of first connecting lines. A method for testing the LCD device is not included in independent claim 1 and therefore, the Examiner’s assertion that testing is not enabled is irrelevant. Furthermore, the shorting bar, which the Examiner alleges renders the apparatus un-testable, is not claimed in independent claim 1. The specification as filed clearly provides

support for making and using the apparatus as claimed in independent claim 1, therefore, independent claim 1 is fully enabled by the specification as filed.

Claim 14 is dependent upon independent claim 1. Claim 14 includes a structural limitation including a shorting bar connected to the first driving signal wire. As discussed in detail in lines 19-24 of page 11 of the application as filed, a shorting bar may be formed adjacent to an upper edge of the panel assembly and extending in the longitudinal direction to connect to the gate driving signal lines 521-524 and the data lines for protection of the switching elements Q for electrostatic discharge protection of the switching elements. Also as discussed in the abovementioned section of the specification, the shorting bar may be eliminated by edge grinding along a cutting line after completion of the panel assembly. (See also FIGS. 3A, B and 6). Applicants herein reproduce the entire section for emphasis:

A shorting bar 320 formed adjacent to the upper edge of the panel assembly 300 and extending in the longitudinal direction is connected to the gate driving signal lines 521-524 and the data lines for protection of the switching elements Q for electrostatic discharge protection of the switching elements Q. This shorting bar 320 is eliminated by edge grinding along a cutting line EG after completion of the panel assembly 300. (See page 11, lines 19-24 of the specification as filed).

Therefore, before the visual inspection ("VI") test, the gate driving signal lines and data lines are disconnected from the shorting bar by edge grinding, and then a test voltage is applied to the pad 139 of the gate driving signal line. The test voltage is not short-circuited across the shorting bar due to its removal prior to testing. Therefore, there is no problem in driving the LCD of the present application, as alleged by the Examiner.

First, one of ordinary skill in the art would understand that the shorting bar may be removed after completion of the panel assembly and before testing. Therefore, one of ordinary skill in the art would be able to make and use the apparatus as claimed in dependent claim 14.

Secondly, a method of testing the apparatus is not claimed in dependent claim 14, and therefore, whether or not such a method is supported by the specification is irrelevant.

In light of the above remarks it is respectfully requested that the Examiner reconsider the rejection of claims 1 and 14 under 35 U.S.C. §112.

Claim Rejections Under 35 U.S.C. §102

In order to anticipate a claim under 35 U.S.C. §102, a single source must contain all of the elements of the claim. *Lewmar Marine v. Barient, Inc.*, 827 F.2d 744, 747, 3 U.S.P.Q.2d 1766, 1768 (Fed. Cir. 1987), *cert denied*, 484 U.S. 1007 (1988). Moreover, the single source must disclose all of the claimed elements “arranged as in the claim.” *Structural Rubber Prods. Co. v. Park Rubber Co.*, 749 F.2d 707, 716, 223 U.S.P.Q. 1264, 1274 (Fed. Cir. 1984). Missing elements may not be supplied by the knowledge of one skilled in the art or the disclosure of another reference. *Titanium Metals Corp. v. Banner*, 778 F.2d 775, 780, 227 U.S.P.Q. 773, 777 (Fed. Cir. 1985).

Claims 1, 7-10, 13, 15, 18, 19, 26-29 and 31-33

Claims 1, 7-10, 13, 15, 18, 19, 26-29 and 31-33 stand rejected under 35 U.S.C. 102(b) as being allegedly anticipated by Nagata et al. (U.S. Patent No. 6,172,410, hereinafter “Nagata”). Applicants respectfully traverse.

Nagata is directed to a collective substrate of active-matrix substrates, a manufacturing method thereof and an inspection method thereof. The collective substrate is divided into a first block and a second block. Cells of the first block and second block form a corresponding signal input pad group wherein an inspection scanning signal is input via a scanning-line short ring connection line to the scanning lines, and an inspection display signal is input via a signal-line short ring connecting line to signal lines, and an auxiliary capacity wire signal is input via an auxiliary capacity wire main wire connecting line to auxiliary capacity wires. (See Abstract and FIG. 17).

Nagata does not disclose: **a first driving signal wire transmitting driving signals from an outside of the display panel to the first display signal lines, wherein the first driving signal wire is separated from the first and second display signal wires, the switching elements, and the pixel electrodes, and includes a first pad connected thereto at a first end thereof, and a second pad connected thereto at a second end thereof** as claimed in amended independent claim 1 of the present invention.

The Examiner states that the inspection scanning lines 153 of Nagata are equivalent to the first driving signal wire as claimed and that the gate lines 2 of Nagata are equivalent to the first display signal lines as claimed. (See page 4 of the present Office action). Nagata however, only

discloses a first connecting pad (represented by the ovoid shape in FIG. 17) connected to a first end of the inspection scanning line 153.

Thus, claim 1 is believed to be patentably distinct and not anticipated by Nagata. Claims 7-10, 13, 15, 18, 19 and 26 depend directly from claim 1, and thus include all the limitations of claim 1. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 1, which is believed to be allowable.

Nagata does not disclose: a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines as claimed in independent claim 27 of the present invention.

The inspection scanning lines 153 of Nagata, which the Examiner alleges are equivalent to the claimed first driving signal lines, do not transmit a driving signal from an outside of the display panel to a gate driver, illustrated as 160b. Instead, the inspection scanning lines 153 transmit only a test signal to the plurality of gate lines 2.

Thus, claim 27 is believed to be patentably distinct and not anticipated by Nagata. Claims 28, 29 and 31 depend directly from claim 27, and thus include all the limitations of claim 27. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 27, which is believed to be allowable.

Nagata does not disclose: wherein each connecting line is disposed between, and connected to, the driving signal line and the at least one of the plurality of gate lines, and the driving signal line and the connecting lines are disposed at substantially the same cross-sectional height from the substrate as claimed in independent claim 32 of the present invention.

There is no disclosure that the inspection scanning lines 153 of Nagata, which the Examiner alleges are equivalent to the claimed first driving signal lines, are disposed at the same cross-sectional height from the substrate as the gate lines 2, which the Examiner alleges are equivalent to the connecting lines as claimed.

Thus, claim 32 is believed to be patentably distinct and not anticipated by Nagata.

Nagata does not disclose: a driving signal line configured to transmit driving signals from an outside of the display panel to at least one of the plurality of data lines and the data driver; and a plurality of connecting lines, each connecting line being disposed

between, and connected to, the driving signal line and at least one of the plurality of data lines as claimed in independent claim 33 of the present invention.

The gate lines 2 of Nagata, which the Examiner alleges are equivalent to the connecting lines as claimed, are not disposed between, and connected to, the driving signal line and at least one of the plurality of data lines. Instead, the gate lines 2 are purposely left disconnected from the data lines in order to be able to independently transfer gate and data voltages across the matrix of gate and data lines shown in FIG. 17.

Thus, claim 33 is believed to be patentably distinct and not anticipated by Nagata.

Accordingly, Applicants respectfully request reconsideration and allowance of claims 1, 7-10, 13, 15, 18, 19, 26-29 and 31-33 in view of Nagata.

Claims 1-5, 7-10, 13, 15, 18-21, 26, 27 and 29-33

Claims 1-5, 7-10, 13, 15, 18-21, 26, 27 and 29-33 stand rejected under 35 U.S.C. 102(b) as being allegedly anticipated by Nishiki et al. (U.S. Patent No. 6,111,620, hereinafter “Nishiki”). Applicants respectfully traverse.

Nishiki is directed towards an active matrix substrate provided with a dielectric substrate, on which a gate wire multi-short-circuit group composed of gate wire multi-short-circuit wires 6a and 6b, and a data wire multi-short-circuit group composed of gate wire multi-short-circuit wires 7a-7c are formed at either ends of the gate wires 1a and data wires 2a, respectively. (See Abstract).

Nishiki does not disclose: **a first driving signal wire transmitting driving signals from an outside of the display panel to the first display signal lines, wherein the first driving signal wire is separated from the first and second display signal wires, the switching elements, and the pixel electrodes, and includes a first pad connected thereto at a first end thereof, and a second pad connected thereto at a second end thereof** as claimed in amended independent claim 1 of the present invention.

The Examiner states Nishiki, “includes a first pad C4 connected thereto at its near end”. (See page 9 of the present Office action). However, C4 is not a reference numeral mentioned in the specification of Nishiki. It appears that the Examiner is referring to a contact C disposed on a gate wire terminal portion 4. However, Applicants respectfully note that the contact C is not disposed on the gate wire multi-short-circuit wire 6a, which the Examiner alleges is equivalent to

the first driving signal wire as claimed. Furthermore, Nishiki does not disclose first and second pads disposed on the gate wire multi-short-circuit wire 6a as claimed in newly amended independent claim 1.

Thus, claim 1 is believed to be patentably distinct and not anticipated by Nishiki. Claims 7-10, 13, 15, 18-21 and 26 depend from claim 1, and thus include all the limitations of claim 1. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 1, which is believed to be allowable.

Nishiki does not disclose: a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines as claimed in independent claim 27 of the present invention.

The gate wire multi-short-circuit wire 6a, which the Examiner alleges is equivalent to the first driving signal line as claimed, does not transmit a driving signal from an outside to a gate driver. Instead, a contact bridge 15 connects the gate wiring 1a to an external gate driver (not shown in FIG. 1).

Thus, claim 27 is believed to be patentably distinct and not anticipated by Nishiki. Claims 29-31 depend directly from claim 27, and thus include all the limitations of claim 27. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 27, which is believed to be allowable.

Nishiki does not disclose: wherein each connecting line is disposed between, and connected to, the driving signal line and the at least one of the plurality of gate lines, and the driving signal line and the connecting lines are disposed at substantially the same cross-sectional height from the substrate as claimed in independent claim 32 of the present invention.

There is no disclosure that the gate wire multi-short-circuit wire 6a, which the Examiner alleges is equivalent to the first driving signal line as claimed, are disposed at the same cross-sectional height from the substrate as the gate wire terminal portion 4, which the Examiner alleges are equivalent to the connecting lines as claimed.

Thus, claim 32 is believed to be patentably distinct and not anticipated by Nishiki.

Nishiki does not disclose: a driving signal line configured to transmit driving signals from an outside of the display panel to at least one of the plurality of data lines and the

data driver; and a plurality of connecting lines, each connecting line being disposed between, and connected to, the driving signal line and at least one of the plurality of data lines as claimed in independent claim 33 of the present invention.

The gate wire terminal portions of Nishiki, which the Examiner alleges are equivalent to the connecting lines as claimed, are not disposed between, and connected to, the driving signal line and at least one of the plurality of data lines. Instead, the gate wire terminal portions 4 are purposely left disconnected from the data lines, e.g., 2a, in order to be able to independently transfer gate and data voltages across the matrix of gate and data lines shown in FIG. 1.

Thus, claim 33 is believed to be patentably distinct and not anticipated by Nishiki.

Accordingly, Applicants respectfully request reconsideration and allowance of claims 1, 7-10, 13, 15, 18-21, 26, 27 and 29-33 in view of Nishiki.

Claims 1-5, 7-10, 13, 15, 18, 19, 20-22, 26-29 and 31-33

Claims 1-5, 7-10, 13, 15, 18, 19, 20-22, 26-29 and 31-33 stand rejected under 35 U.S.C. 102(e) as being allegedly anticipated by Kim et al. (U.S. Patent No. 6,636,288, hereinafter "Kim"). Applicants respectfully traverse.

Kim is directed to a liquid crystal display including gate signal interconnection wires formed at a corner portion of a substrate and outside the display area to transmit gate electrical signals, and provided with gate signal interconnection lines and first and second gate signal interconnection pads connected to both ends of the gate signal interconnection lines. (See Abstract and FIG. 1).

Kim does not disclose: **a first driving signal wire transmitting driving signals from an outside of the display panel to the first display signal lines, wherein the first driving signal wire is separated from the first and second display signal wires, the switching elements, and the pixel electrodes, and includes a first pad connected thereto at a first end thereof, and a second pad connected thereto at a second end thereof** as claimed in amended independent claim 1 of the present invention.

The Examiner states the gate signal interconnection wires 134 of Kim are equivalent to the first driving signal wires as claimed. The Examiner also states that the pads C4 are connected to the gate signal interconnection wires 134 at near ends thereof. While the gate

signal interconnection wires 134 do include pads C4 (and also C3, C5 and C6), the pads are not disposed at a first end thereof and a second end thereof as claimed.

Thus, claim 1 is believed to be patentably distinct and not anticipated by Kim. Claims 2-5, 7-10, 13, 15, 18, 19, 20-22 and 26 depend directly from claim 1, and thus include all the limitations of claim 1. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 1, which is believed to be allowable.

Kim does not disclose: **a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines** as claimed in independent claim 27 of the present invention.

The gate signal interconnection wires 134, which the Examiner alleges are equivalent to the first driving signal line as claimed, do not transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines. (See FIG. 1).

Thus, claim 27 is believed to be patentably distinct and not anticipated by Kim. Claims 28, 29 and 31 depend directly from claim 27, and thus include all the limitations of claim 27. It is thus believed that the dependent claims are allowable for at least the reasons given for independent claim 27, which is believed to be allowable.

Kim does not disclose: **wherein each connecting line is disposed between, and connected to, the driving signal line and the at least one of the plurality of gate lines, and the driving signal line and the connecting lines are disposed at substantially the same cross-sectional height from the substrate** as claimed in independent claim 32 of the present invention.

There is no disclosure that the gate signal interconnection wires 134, which the Examiner alleges are equivalent to the first driving signal line as claimed, are disposed at the same cross-sectional height from the substrate as the portion of the signal lines disposed between the chip 122 and the contact C1, which the Examiner alleges are equivalent to the connecting lines as claimed.

Thus, claim 32 is believed to be patentably distinct and not anticipated by Kim.

Kim does not disclose: **a driving signal line configured to transmit driving signals from an outside of the display panel to at least one of the plurality of data lines and the data driver; and a plurality of connecting lines, each connecting line being disposed**

between, and connected to, the driving signal line and at least one of the plurality of data lines as claimed in independent claim 33 of the present invention.

The portion of the signal lines disposed between the chip 122 and the contact C1, which the Examiner alleges are equivalent to the connecting lines as claimed, are not disposed between, and connected to, the driving signal line and at least one of the plurality of data lines 114.

Instead, the portions of the signal lines disposed between the chip 122 and the contact C1 are purposely left disconnected from the data lines 114, in order to be able to independently transfer gate and data voltages across the matrix of gate and data lines shown in FIG. 1.

Thus, claim 33 is believed to be patentably distinct and not anticipated by Kim.

Accordingly, Applicants respectfully request reconsideration and allowance of claims 1-5, 7-10, 13, 15, 18, 19, 20-22, 26-29 and 31-33 in view of Kim.

Rejections Under 35 U.S.C. § 103

In order for an obviousness rejection to be proper, the Examiner must meet the burden of establishing that all of the elements of the invention are disclosed in the prior art, and that the proposed modification of the prior art must have had a reasonable expectation of success, determined from the vantage point of the skilled artisan at the time the invention was made. See MPEP 2143.

Claim 30

Claim 30 stands rejected under 35 U.S.C. §103(a) as being allegedly unpatentable over Nagata in view of Nishiki. The Examiner states that Nagata discloses all of the elements of claim 30 except, *a liquid crystal device comprising a shorting bar intersecting the data liens and the first driving signal line, wherein the shorting bar is configured to be removed by edge grinding along a cutting line*, which the Examiner further states is disclosed primarily in FIG. 1 of Nishiki.

As mentioned above for amended claim 1, Nagata does not disclose, teach or suggest: **a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines** as claimed in independent claim 27 of the present invention.

Nishiki fails to cure the defects of Nagata noted above with respect to claim 27, namely, Nishiki does not disclose, teach or suggest: **a first driving signal line configured to transmit driving signals from an outside of the display panel to the gate driver and also configured to transmit a first test signal via a plurality of first connecting lines to at least one of the plurality of gate lines** as claimed in independent claim 27 of the present invention

Applicants submit that Nagata, either alone or in combination with Nishiki, does not render obvious the subject matter of claim 27. Claim 30 depends from claim 27, and thus includes the allowable elements of claim 27. It is thus believed that the dependent claims are patentable over the cited references for at least the reasons given above for independent claim 27.

Accordingly, it is respectfully submitted that the claimed invention is allowable over the cited references. The Examiner's reconsideration and withdrawal of the rejection of claim 30, and the subsequent allowance of the same, is respectfully requested.

Conclusion

All of the objections and rejections are herein overcome. In view of the foregoing, it is respectfully submitted that the instant application is in condition for allowance. No new matter is added by way of the present Amendments and Remarks, as support is found throughout the original filed specification, claims and drawings. Prompt issuance of Notice of Allowance is respectfully requested.

The Examiner is invited to contact Applicant's attorney at the below listed phone number regarding this response or otherwise concerning the present application.

Applicant hereby petitions for any necessary extension of time required under 37 C.F.R. 1.136(a) or 1.136(b) which may be required for entry and consideration of the present Reply.

If there are any charges due with respect to this Amendment or otherwise, please charge them to Deposit Account No. 06-1130 maintained by Applicant's attorneys.

Respectfully submitted,

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